SEQUENCE LISTING

<110> Castrillon, Diego H

<120> COMPOSITIONS AND METHODS FOR THE IMPROVED DIAGNOSIS OF GERM CELL TUMORS

<130> B0801.70195US00

<140> 09/714,865
<141> 2000-11-16

<150> 60/166,394
<151> 1999-11-18

<160> 47

<170> PatentIn version 3.2

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<212>   PRT
<213>   Homo sapiens

<400>   2

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Tyr Val Pro Ile Phe Glu Lys Asp Arg Tyr Ser Gly Glu Asn Gly Asp
            20   25   30

Asn Phe Asn Arg Thr Pro Ala Ser Ser Ser Glu Met Asp Asp Gly Pro
        35   40   45

Ser Arg Arg Asp His Phe Met Lys Ser Gly Phe Ala Ser Gly Arg Asn

Phe Gly Asn Arg Asp Ala Gly Glu Cys Asn Lys Arg Asp Asn Thr Ser
65   70   75   80

Thr Met Gly Gly Phe Gly Val Gly Lys Ser Phe Gly Asn Arg Gly Phe
                85   90   95

Ser Asn Ser Arg Phe Glu Asp Gly Asp Ser Ser Gly Phe Trp Arg Glu
            100   105   110

Ser Ser Asn Asp Cys Glu Asp Asn Pro Thr Arg Asn Arg Gly Phe Ser
        115   120   125

Lys Arg Gly Gly Tyr Arg Asp Gly Asn Asn Ser Glu Ala Ser Gly Pro
    130   135   140

Tyr Arg Arg Gly Gly Arg Gly Ser Phe Arg Gly Cys Arg Gly Gly Phe
145   150   155   160

Gly Leu Gly Ser Pro Asn Asn Asp Leu Asp Pro Asp Glu Cys Met Gln
            165   170   175

Arg Thr Gly Gly Leu Phe Gly Ser Arg Arg Pro Val Leu Ser Gly Thr
            180   185   190

Gly Asn Gly Asp Thr Ser Gln Ser Arg Ser Gly Ser Gly Ser Glu Arg
        195   200   205

Gly Gly Tyr Lys Gly Leu Asn Glu Glu Val Ile Thr Gly Ser Gly Lys
    210   215   220

Asn Ser Trp Lys Ser Glu Ala Glu Gly Gly Glu Ser Ser Asp Thr Gln
225   230   235   240

Gly Pro Lys Val Thr Tyr Ile Pro Pro Pro Pro Glu Asp Glu Asp
            245   250   255

Ser Ile Phe Ala His Tyr Gln Thr Gly Ile Asn Phe Asp Lys Tyr Asp
            260   265   270

Thr Ile Leu Val Glu Val Ser Gly His Asp Ala Pro Pro Ala Ile Leu
        275   280   285

Thr Phe Glu Glu Ala Asn Leu Cys Gln Thr Leu Asn Asn Asn Ile Ala
    290   295   300

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Lys Ala Gly Tyr Thr Lys Leu Thr Pro Val Gln Lys Tyr Ser Ile Pro
305                 310             315                 320

Ile Ile Leu Ala Gly Arg Asp Leu Met Ala Cys Ala Gln Thr Gly Ser
            325             330                 335

Gly Lys Thr Ala Ala Phe Leu Leu Pro Ile Leu Ala His Met Met His
            340             345                 350

Asp Gly Ile Thr Ala Ser Arg Phe Lys Glu Leu Gln Glu Pro Glu Cys
        355             360                 365

Ile Ile Val Ala Pro Thr Arg Glu Leu Val Asn Gln Ile Tyr Leu Glu
    370             375                 380

Ala Arg Lys Phe Ser Phe Gly Thr Cys Val Arg Ala Val Val Ile Tyr
385             390                 395                 400

Gly Gly Thr Gln Leu Gly His Ser Ile Arg Gln Ile Val Gln Gly Cys
            405             410                 415

Asn Ile Leu Cys Ala Thr Pro Gly Arg Leu Met Asp Ile Ile Gly Lys
            420             425                 430

Glu Lys Ile Gly Leu Lys Gln Ile Lys Tyr Leu Val Leu Asp Glu Ala
        435             440             445

Asp Arg Met Leu Asp Met Gly Phe Gly Pro Glu Met Lys Lys Leu Ile
    450             455                 460

Ser Cys Pro Gly Met Pro Ser Lys Glu Gln Arg Gln Thr Leu Met Phe
465             470                 475                 480

Ser Ala Thr Phe Pro Glu Glu Ile Gln Arg Leu Ala Ala Glu Phe Leu
            485             490                 495

Lys Ser Asn Tyr Leu Phe Val Ala Val Gly Gln Val Gly Gly Ala Cys
            500             505                 510

Arg Asp Val Gln Gln Thr Val Leu Gln Val Gly Gln Phe Ser Lys Arg
            515             520                 525

Glu Lys Leu Val Glu Ile Leu Arg Asn Ile Gly Asp Glu Arg Thr Met
    530             535                 540
```

Val Phe Val Glu Thr Lys Lys Lys Ala Asp Phe Thr Ala Thr Phe Leu
545   550   555   560

Cys Gln Glu Lys Ile Ser Thr Thr Ser Ile His Gly Asp Arg Glu Gln
                565   570   575

Arg Glu Arg Glu Gln Ala Leu Gly Asp Phe Arg Phe Gly Lys Cys Pro
            580   585   590

Val Leu Val Ala Thr Ser Val Ala Ala Arg Gly Leu Asp Ile Glu Asn
        595   600   605

Val Gln His Val Ile Asn Phe Asp Leu Pro Ser Thr Ile Asp Glu Tyr
    610   615   620

Val His Arg Ile Gly Arg Thr Gly Arg Cys Gly Asn Thr Gly Arg Ala
625   630   635   640

Ile Ser Phe Phe Asp Leu Glu Ser Asp Asn His Leu Ala Gln Pro Leu
            645   650   655

Val Lys Val Leu Thr Asp Ala Gln Gln Asp Val Pro Ala Trp Leu Glu
            660   665   670

Glu Ile Ala Phe Ser Thr Tyr Ile Pro Gly Phe Ser Gly Ser Thr Arg
        675   680   685

Gly Asn Val Phe Ala Ser Val Asp Thr Arg Lys Gly Lys Ser Thr Leu
    690   695   700

Asn Thr Ala Gly Phe Ser Ser Ser Arg Ala Pro Asn Pro Val Asp Asp
705   710   715   720

Glu Ser Trp Asp

<210>   3
<211>   722
<212>   PRT
<213>   Mus musculus

<400>   3

Met Gly Asp Glu Asp Trp Glu Ala Glu Ile Leu Lys Pro His Val Ser
1   5   10   15

Ser Tyr Val Pro Val Phe Glu Lys Asp Lys Tyr Ser Ser Gly Ala Asn

Gly Asp Thr Phe Asn Arg Thr Ser Ala Ser Ser Glu Met Glu Asp Gly
    35   40   45

Pro Ser Gly Arg Asp Asp Phe Met Arg Ser Gly Phe Pro Ser Gly Arg
    50   55   60

Ser Leu Gly Ser Arg Asp Ile Gly Glu Ser Ser Lys Lys Glu Asn Thr
65   70   75   80

Ser Thr Thr Gly Gly Phe Gly Arg Gly Lys Gly Phe Gly Asn Arg Gly
                85   90   95

Phe Leu Asn Asn Lys Phe Glu Glu Gly Asp Ser Ser Gly Phe Trp Lys
            100   105   110

Glu Ser Asn Asn Asp Cys Glu Asp Asn Gln Thr Arg Ser Arg Gly Phe
            115   120   125

Ser Lys Arg Gly Gly Cys Gln Asp Gly Asn Asp Ser Glu Ala Ser Gly
    130   135   140

Pro Phe Arg Arg Gly Gly Arg Gly Ser Phe Arg Gly Cys Arg Gly Gly
145   150   155   160

Phe Gly Leu Gly Arg Pro Asn Ser Glu Ser Asp Gln Asp Gln Gly Thr
            165   170   175

Gln Cys Gly Gly Gly Phe Leu Val Leu Gly Lys Pro Ala Ala Ser Asp
            180   185   190

Ser Gly Asn Gly Asp Thr Tyr Gln Ser Arg Ser Gly Ser Gly Arg Gly
    195   200   205

Gly Tyr Lys Gly Leu Asn Glu Glu Val Val Thr Gly Ser Gly Lys Asn
    210   215   220

Ser Trp Lys Ser Glu Thr Glu Gly Gly Glu Ser Ser Asp Ser Gln Gly
225   230   235   240

Pro Lys Val Thr Tyr Ile Pro Pro Pro Pro Glu Asp Glu Asp Ser
            245   250   255

Ile Phe Ala His Tyr Gln Thr Gly Ile Asn Phe Asp Lys Tyr Asp Thr
            260   265   270

```
Ile Leu Val Glu Val Ser Gly His Asp Ala Pro Pro Ala Ile Leu Thr
        275             280         285

Phe Glu Glu Ala Asn Leu Cys Gln Thr Leu Asn Asn Asn Ile Arg Lys
        290             295         300

Ala Gly Tyr Thr Lys Leu Thr Pro Val Gln Lys Tyr Thr Ile Pro Ile
305             310             315                 320

Val Leu Ala Gly Arg Asp Leu Met Ala Cys Ala Gln Thr Gly Ser Gly
            325             330             335

Lys Thr Ala Ala Phe Leu Leu Pro Ile Leu Ala His Met Met Arg Asp
        340             345             350

Gly Ile Thr Ala Ser Arg Phe Lys Glu Leu Gln Glu Pro Glu Cys Ile
        355             360             365

Ile Val Ala Pro Thr Arg Glu Leu Ile Asn Gln Ile Tyr Leu Glu Ala
    370             375             380

Arg Lys Phe Ser Phe Gly Thr Cys Val Ile Ser Val Val Ile Tyr Gly
385             390             395                 400

Gly Thr Gln Phe Gly His Ser Val Arg Gln Ile Val Gln Gly Cys Asn
            405             410             415

Ile Leu Cys Ala Thr Pro Gly Arg Leu Met Asp Ile Ile Gly Lys Glu
        420             425             430

Lys Ile Gly Leu Lys Gln Val Lys Tyr Leu Val Leu Asp Glu Ala Asp
        435             440             445

Ser Met Leu Asp Met Gly Phe Ala Pro Glu Ile Lys Lys Leu Ile Ser
    450             455             460

Cys Pro Gly Met Pro Ser Lys Glu Gln His Gln Thr Leu Leu Phe Ser
465             470             475                 480

Ala Thr Phe Pro Glu Glu Ile Gln Arg Leu Ala Gly Asp Phe Leu Lys
            485             490             495

Ser Asn Tyr Leu Phe Val Ala Val Gly Gln Val Gly Gly Ala Cys Arg
            500             505             510
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Asp Val Gln Gln Thr Ile Leu Gln Val Gly Gln Tyr Gln Lys Glu Lys
        515   520   525

Ser Leu Leu Arg Phe Tyr Glu Asn Ile Gly Asp Glu Arg Thr Met Val
        530   535   540

Phe Val Glu Thr Lys Lys Lys Ala Asp Phe Ile Ala Thr Phe Leu Cys
545   550   555   560

Gln Glu Lys Ile Ser Ser Thr Ser Ile His Gly Asp Arg Glu Gln Arg
                565   570   575

Glu Arg Glu Gln Ala Leu Gly Asp Phe Arg Cys Gly Lys Cys Pro Val
                580   585   590

Leu Val Ala Thr Ser Val Ala Ala Arg Gly Leu Asp Ile Glu Asn Val
        595   600   605

Gln His Val Ile Asn Phe Asp Leu Pro Ser Thr Ile Asp Glu Tyr Val
        610   615   620

His Arg Ile Gly Arg Thr Gly Arg Cys Gly Asn Thr Gly Arg Ala Ile
625   630   635   640

Ser Phe Phe Asp Thr Asp Ser Asp Asn His Leu Ala Gln Pro Leu Val
                645   650   655

Lys Val Leu Ser Asp Ala Gln Gln Asp Val Pro Ala Trp Leu Glu Glu
                660   665   670

Ile Ala Phe Ser Thr Tyr Val Pro Pro Ser Phe Ser Ser Ser Thr Arg
        675   680   685

Gly Gly Ala Val Phe Ala Ser Val Asp Thr Arg Lys Asn Tyr Gln Gly
        690   695   700

Lys Ala His Val Glu Tyr Ser Gly Asp Phe Phe Phe Thr Ser Ser Gln
705   710   715   720

Ser Ser

<210>   4
<211>   713
<212>   PRT
<213>   Rattus norvegicus

<400> 4

Met Gly Asp Glu Asp Trp Glu Ala Glu Ile Leu Lys Pro His Val Ser
1   5   10   15

Ser Tyr Val Pro Val Phe Glu Lys Asp Lys Tyr Ser Ser Gly Ala Asn
            20   25   30

Gly Asp Thr Phe Asn Arg Thr Ser Ala Ser Ser Ser Glu Met Glu Asp
        35   40   45

Gly Pro Ser Gly Arg Asp His Phe Met Arg Ser Gly Phe Ser Ser Gly
    50   55   60

Arg Asn Leu Gly Asn Arg Asp Ile Gly Glu Ser Ser Lys Arg Glu Thr
65   70   75   80

Thr Ser Thr Thr Gly Gly Phe Gly Arg Gly Lys Gly Phe Gly Asn Arg
                85   90   95

Gly Phe Leu Asn Asn Lys Phe Glu Glu Gly Asp Ser Ser Gly Phe Trp
        100   105   110

Lys Glu Ser Thr Asn Asp Cys Glu Asp Thr Gln Thr Arg Ser Arg Gly
        115   120   125

Phe Ser Lys Arg Gly Gly Tyr Pro Asp Gly Asn Asp Ser Glu Ala Ser
    130   135   140

Gly Pro Phe Arg Arg Gly Gly Arg Asp Ser Glu Tyr Asp Gln Asp Gln
145   150   155   160

Gly Ser Gln Arg Gly Gly Gly Leu Phe Gly Ser Arg Lys Pro Ala Ala
                165   170   175

Ser Asp Ser Gly Ser Gly Asp Thr Phe Gln Ser Arg Ser Gly Asn Ala
        180   185   190

Arg Gly Ala Tyr Lys Gly Leu Asn Glu Glu Val Val Thr Gly Ser Gly
        195   200   205

Lys Asn Ser Trp Lys Ser Glu Ala Glu Gly Gly Glu Ser Ser Asp Ile
    210   215   220

Gln Gly Pro Lys Val Thr Tyr Ile Pro Pro Pro Pro Glu Asp Glu
225   230   235   240

```
Asp Ser Ile Phe Ala His Tyr Gln Thr Gly Ile Asn Phe Asp Lys Tyr
            245             250                 255

Asp Thr Ile Leu Val Glu Val Ser Gly His Asp Ala Pro Pro Ala Ile
            260             265                 270

Leu Thr Phe Glu Glu Ala Asn Leu Cys Gln Thr Leu Asn Asn Asn Ile
            275             280                 285

Ala Lys Ala Gly Tyr Thr Lys Leu Thr Pro Val Gln Lys Tyr Ser Ile
    290             295             300

Pro Ile Val Leu Ala Gly Arg Asp Leu Met Ala Cys Ala Gln Thr Gly
305             310             315             320

Ser Gly Lys Thr Ala Ala Phe Leu Leu Pro Ile Leu Ala His Met Met
            325             330             335

Arg Asp Gly Ile Thr Ala Ser Arg Phe Lys Glu Leu Gln Glu Pro Glu
            340             345             350

Cys Ile Ile Val Ala Pro Thr Arg Glu Leu Ile Asn Gln Ile Tyr Leu
            355             360             365

Glu Ala Arg Lys Phe Ser Phe Gly Thr Cys Val Arg Ala Val Val Ile
    370             375             380

Tyr Gly Gly Thr Gln Phe Gly His Ser Ile Arg Gln Ile Val Gln Gly
385             390             395             400

Cys Asn Ile Leu Cys Ala Thr Pro Gly Arg Leu Met Asp Ile Ile Gly
            405             410             415

Lys Glu Lys Ile Gly Leu Lys Gln Val Lys Tyr Leu Val Leu Asp Glu
            420             425             430

Ala Asp Arg Met Leu Asp Met Gly Phe Gly Pro Glu Met Lys Lys Leu
    435             440             445

Ile Ser Cys Pro Gly Met Pro Ser Lys Glu Gln Arg Gln Thr Leu Leu
    450             455             460

Phe Ser Ala Thr Phe Pro Glu Glu Ile Gln Arg Leu Ala Gly Glu Phe
465             470             475             480
```

```
Leu Lys Ser Asn Tyr Leu Phe Val Ala Val Gly Gln Val Gly Gly Ala
                485             490                 495

Cys Arg Asp Val Gln Gln Ser Ile Leu Gln Val Gly Pro Val Phe Lys
            500             505                 510

Lys Arg Lys Leu Val Glu Ile Leu Arg Asn Ile Gly Asp Glu Arg Pro
            515             520                 525

Met Val Phe Val Glu Thr Lys Lys Lys Ala Asp Phe Ile Ala Thr Phe
    530             535                 540

Leu Cys Gln Glu Lys Ile Ser Thr Thr Ser Ile His Gly Asp Arg Glu
545             550                 555                 560

Gln Arg Glu Arg Glu Gln Ala Leu Gly Asp Phe Arg Cys Gly Lys Cys
            565             570                 575

Pro Val Leu Val Ala Thr Ser Val Ala Ala Arg Gly Leu Asp Ile Glu
            580             585                 590

Asn Val Gln His Val Ile Asn Phe Asn Leu Pro Ser Thr Ile Asp Glu
            595             600                 605

Tyr Val His Arg Ile Gly Arg Thr Gly Arg Cys Gly Asn Thr Gly Arg
    610             615                 620

Ala Ile Ser Phe Phe Asp Thr Glu Ser Asp Asn His Leu Ala Gln Pro
625             630                 635                 640

Leu Val Lys Val Leu Ser Asp Ala Gln Gln Asp Val Pro Ala Trp Leu
            645             650                 655

Glu Glu Ile Ala Phe Ser Ser Tyr Ala Pro Pro Ser Phe Ser Asn Ser
            660             665                 670

Thr Arg Gly Ala Val Phe Ala Ser Phe Asp Thr Arg Lys Asn Phe Gln
            675             680                 685

Gly Lys Asn Thr Leu Asn Thr Ala Gly Ile Ser Ser Ala Gln Ala Pro
    690             695                 700

Asn Pro Val Asp Asp Glu Ser Trp Asp
705             710
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<210> 5
<211> 700
<212> PRT
<213> Xenopus laevis

<400> 5

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Met Glu Glu Asn Trp Asp Thr Glu Ile Glu Thr Glu Lys Pro Thr Tyr
1               5                   10                  15


Val Pro Asn Phe Ser Thr Leu Glu Thr Glu Asn Thr Asp Asn Tyr Ser
            20                  25                  30


Ala Tyr Ser Asn Asn Asp Ile Asn Asn Gln Asn Tyr Asp Ser Glu Arg
        35                  40                  45


Ser Phe Gly Asn Arg Gly Gly Tyr Arg Ser Glu Arg Ser Arg Pro Ser
    50                  55                  60


Asn Phe Asn Arg Gly Ser Arg Thr Glu Arg Gly Arg Gly Arg Gly Phe
65                  70                  75                  80


Gly Thr Asn Arg Asn Asp Asn Tyr Ser Ser Glu Arg Asp Val Phe Gly
                85                  90                  95


Asp Asp Glu Arg Asp Gln Arg Arg Gly Phe Pro Gly Arg Gly Gly Tyr
            100                 105                 110


Asn Gly Asn Glu Asp Gly Gln Lys Pro Asn Ala Phe Arg Gly Arg Gly
        115                 120                 125


Gly Phe Arg Asn Glu Asn Glu Gln Arg Arg Gly Phe Gly Glu Arg Gly
    130                 135                 140


Gly Phe Arg Ser Glu Asn Gly Gln Arg Asn Phe Asp Asn Arg Gly Asp
145                 150                 155                 160


Phe Gly Asn Ser Gly Glu Glu Glu Asp Arg Pro Arg Ser Tyr Gly Arg
                165                 170                 175


Gly Gly Phe Asn Asn Ser Asp Thr Gly Gly Arg Gly Arg Arg Gly Gly
            180                 185                 190


Arg Gly Gly Gly Ser Gln Tyr Gly Gly Tyr Lys Gly Arg Asn Glu Glu
        195                 200                 205


Val Gly Val Glu Ser Gly Lys Ser Gln Glu Glu Gly Asn Glu Lys Asp
    210                 215                 220
```

```
Glu Lys Pro Lys Lys Val Thr Tyr Ile Pro Pro Pro Pro Asp Gly
225             230             235             240

Glu Asp Asn Ile Phe Arg Gln Tyr Gln Ser Gly Ile Asn Phe Asp Lys
            245             250             255

Tyr Asp Glu Ile Leu Val Asp Val Thr Gly Lys Asp Val Pro Pro Ala
            260             265             270

Ile Leu Thr Phe Glu Glu Ala Asn Leu Cys Glu Thr Leu Arg Arg Asn
            275             280             285

Val Ala Arg Ala Gly Tyr Val Lys Leu Thr Pro Val Gln Lys His Ser
    290             295             300

Ile Pro Ile Ile Met Ala Gly Arg Asp Leu Met Ala Cys Ala Gln Thr
305             310             315             320

Gly Ser Gly Lys Thr Ala Ala Phe Leu Leu Pro Ile Leu Ser Tyr Met
            325             330             335

Met Asn Glu Gly Ile Thr Ala Ser Gln Tyr Leu Gln Leu Gln Glu Pro
            340             345             350

Glu Ala Ile Ile Ile Ala Pro Thr Arg Glu Leu Ile Asn Gln Ile Tyr
            355             360             365

Leu Asp Ala Arg Lys Phe Ser Tyr Gly Thr Cys Val Arg Pro Val Val
    370             375             380

Val Tyr Gly Gly Ile Gln Pro Val His Ala Met Arg Asp Val Glu Lys
385             390             395             400

Gly Cys Asn Ile Leu Cys Ala Thr Pro Gly Arg Leu Leu Asp Ile Val
            405             410             415

Ser Lys Glu Lys Ile Gly Leu Ser Lys Leu Arg Tyr Leu Val Leu Asp
            420             425             430

Glu Ala Asp Arg Met Leu Asp Met Gly Phe Ala Pro Glu Ile Glu Lys
    435             440             445

Leu Met Thr Lys Pro Gly Met Pro Thr Lys Glu Lys Arg Gln Thr Leu
    450             455             460
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Met Phe Ser Ala Thr Tyr Pro Glu Glu Ile Arg Arg Leu Ala Ser Asn
465             470             475             480


Tyr Leu Lys Ser Glu His Leu Phe Val Val Val Gly Leu Val Gly Gly
            485             490             495


Ala Cys Ser Asp Val Ala Gln Thr Val Leu Glu Met Arg Glu Asn Gly
            500             505             510


Lys Met Glu Lys Leu Leu Glu Ile Leu Lys Ser Ser Glu Lys Glu Arg
        515             520             525


Thr Met Ile Phe Val Asn Thr Lys Lys Lys Ala Asp Phe Ile Ala Gly
    530             535             540


Tyr Leu Cys Gln Glu Lys Phe Ser Ser Thr Ser Ile His Gly Asp Arg
545             550             555             560


Glu Gln Tyr Gln Arg Glu Ser Ala Leu Trp Asp Phe Arg Thr Gly Lys
            565             570             575


Cys Thr Val Ile Val Cys Thr Ala Val Ala Ala Arg Gly Leu Asp Ile
            580             585             590


Glu Asn Val Gln His Val Ile Asn Tyr Asp Val Pro Lys Glu Val Asp
        595             600             605


Glu Tyr Val His Arg Ile Gly Arg Thr Gly Arg Cys Gly Asn Thr Gly
    610             615             620


Lys Ala Thr Ser Phe Phe Asn Val Gln Asp Asp His Val Ile Ala Arg
625             630             635             640


Pro Leu Val Lys Ile Leu Thr Asp Ala His Gln Glu Val Pro Ala Trp
            645             650             655


Leu Glu Glu Ile Ala Phe Gly Gly His Gly Ala Leu Asn Ser Phe Tyr
            660             665             670


Ala Ala Asp Ser Met Gly Glu Gln Ala Gly Gly Asn Ala Val Thr Thr
        675             680             685


Pro Ser Phe Ala Gln Glu Glu Glu Ala Ser Trp Asp
    690             695             700
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<210> 6
<211> 700
<212> PRT
<213> Danio reio

<400> 6

Met Asp Asp Trp Glu Glu Asp Gln Ser Pro Val Val Ser Cys Ser Ser
1   5   10   15

Gly Phe Gly Gly Ala Gly Asn Asp Lys Ser Asn Ser Glu Gly Thr Glu
                20   25   30

Gly Ser Ser Trp Lys Met Thr Gly Asp Ser Phe Arg Gly Arg Gly Gly
        35   40   45

Arg Gly Gly Ser Arg Gly Gly Arg Gly Gly Phe Ser Gly Phe Lys Ser
    50   55   60

Glu Ile Asp Glu Asn Gly Ser Asp Gly Gly Trp Asn Gly Gly Glu Ser
65   70   75   80

Arg Gly Arg Gly Arg Gly Gly Phe Arg Gly Gly Phe Arg Ser Gly Ser
                85   90   95

Arg Asp Glu Asn Asp Glu Asn Gly Asn Asp Asp Gly Trp Lys Gly Gly
            100   105   110

Glu Ser Arg Gly Arg Gly Arg Gly Gly Phe Gly Gly Gly Phe Arg Gly
        115   120   125

Gly Phe Arg Asp Gly Gly Asn Glu Asp Thr Gly Arg Arg Gly Phe Gly
    130   135   140

Arg Glu Asn Asn Glu Asn Gly Asn Asp Glu Gly Gly Glu Gly Arg Gly
145   150   155   160

Arg Gly Arg Gly Gly Phe Arg Gly Gly Phe Arg Asp Gly Gly Gly Asp
                165   170   175

Glu Ser Gly Lys Arg Gly Phe Gly Arg Gly Gly Phe Arg Gly Arg Asn
            180   185   190

Glu Glu Val Phe Ser Lys Val Thr Thr Ala Asp Lys Leu Asp Gln Glu
        195   200   205

Gly Ser Glu Asn Ala Gly Pro Lys Val Val Tyr Val Pro Pro Pro Pro
    210   215   220

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Pro Glu Glu Glu Ser Ser Ile Phe Ser His Tyr Ala Thr Gly Ile Asn
225             230             235                 240


Phe Asp Lys Tyr Asp Asp Ile Leu Val Asp Val Ser Gly Ser Asn Pro
            245             250                 255


Pro Lys Ala Ile Met Thr Phe Glu Glu Ala Gly Leu Cys Asp Ser Leu
            260             265                 270


Ser Lys Asn Val Ser Lys Ser Gly Tyr Val Lys Pro Thr Pro Val Gln
            275             280                 285


Lys His Gly Ile Pro Ile Ile Ser Ala Gly Arg Asp Leu Met Ala Cys
        290             295             300


Ala Gln Thr Gly Ser Gly Lys Thr Ala Ala Phe Leu Leu Pro Ile Leu
305             310             315                 320


Gln Arg Phe Met Thr Asp Gly Val Ala Ala Ser Lys Phe Ser Glu Ile
            325             330                 335


Gln Glu Pro Glu Ala Ile Ile Val Ala Pro Thr Arg Glu Leu Ile Asn
            340             345                 350


Gln Ile Tyr Leu Glu Ala Arg Lys Phe Ala Tyr Gly Thr Cys Val Arg
        355             360             365


Pro Val Val Val Tyr Gly Gly Ile Asn Thr Gly Tyr Thr Ile Arg Glu
        370             375             380


Val Leu Lys Gly Cys Asn Val Leu Cys Ala Thr Pro Gly Arg Leu His
385             390             395                 400


Asp Leu Ile Gly Arg Gly Lys Ile Gly Leu Ser Lys Val Arg Tyr Leu
            405             410                 415


Val Leu Asp Glu Ala Asp Arg Met Leu Asp Met Gly Phe Glu Pro Glu
            420             425                 430


Met Arg Lys Leu Val Ala Ser Pro Gly Met Pro Ser Lys Glu Lys Arg
            435             440                 445


Gln Thr Leu Met Phe Ser Ala Thr Tyr Pro Glu Asp Ile Gln Arg Met
        450             455             460
```

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Ala Ala Asp Phe Leu Lys Val Asp Tyr Ile Phe Leu Ala Val Gly Val
465             470             475             480

Val Gly Gly Ala Cys Ser Asp Val Glu Gln Thr Ile Val Gln Val Asp
            485             490             495

Gln Tyr Ser Lys Arg Asp Gln Leu Leu Glu Leu Leu Arg Ala Thr Gly
            500             505             510

Asn Glu Arg Thr Met Val Phe Val Glu Thr Lys Arg Ser Ala Asp Phe
            515             520             525

Ile Ala Thr Phe Leu Cys Gln Glu Lys Ile Ser Thr Thr Ser Ile His
            530             535             540

Gly Asp Arg Glu Gln Arg Glu Arg Glu Lys Ala Leu Ser Asp Phe Arg
545             550             555             560

Leu Gly His Cys Pro Val Leu Val Ala Thr Ser Val Ala Ala Arg Gly
            565             570             575

Leu Asp Ile Glu Gln Val Gln His Val Val Asn Phe Asp Met Pro Ser
            580             585             590

Ser Ile Asp Glu Tyr Val His Arg Ile Gly Arg Thr Gly Arg Cys Gly
            595             600             605

Asn Thr Gly Arg Ala Val Ser Phe Phe Asn Pro Glu Ser Asp Thr Pro
            610             615             620

Leu Ala Arg Ser Leu Val Lys Val Leu Ser Gly Ala Gln Gln Val Val
625             630             635             640

Pro Lys Trp Leu Glu Glu Val Ala Phe Ser Ala His Gly Thr Thr Gly
            645             650             655

Phe Asn Pro Arg Gly Lys Val Phe Ala Ser Thr Asp Ser Arg Lys Gly
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Gly Ser Phe Lys Ser Asp Glu Pro Pro Pro Ser Gln Thr Ser Ala Pro
            675             680             685

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<212> PRT
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Arg Gly Gly Asp Trp Ser Asp Asp Glu Asp Thr Ala Lys Ser Phe Ser
            20   25   30

Gly Glu Ala Glu Gly Asp Gly Val Gly Gly Ser Gly Gly Glu Gly Gly
        35   40   45

Gly Tyr Gln Gly Gly Asn Arg Asp Val Phe Gly Arg Ile Gly Gly Gly
    50   55   60

Arg Gly Gly Gly Ala Gly Gly Tyr Arg Gly Gly Asn Arg Asp Gly Gly
65   70   75   80

Gly Phe His Gly Gly Arg Arg Glu Gly Glu Arg Asp Phe Arg Gly Gly
            85   90   95

Glu Gly Gly Phe Arg Gly Gly Gln Gly Gly Ser Arg Gly Gly Gln Gly
            100   105   110

Gly Ser Arg Gly Gly Gln Gly Gly Phe Arg Gly Gly Glu Gly Gly Phe
        115   120   125

Arg Gly Arg Leu Tyr Glu Asn Glu Asp Gly Asp Glu Arg Arg Gly Arg
    130   135   140

Leu Asp Arg Glu Glu Arg Gly Gly Glu Arg Arg Gly Arg Leu Asp Arg
145   150   155   160

Glu Glu Arg Gly Gly Glu Arg Gly Glu Arg Gly Asp Gly Gly Phe Ala
                165   170   175

Arg Arg Arg Arg Asn Glu Asp Asp Ile Asn Asn Asn Asn Ile Ala
            180   185   190

Glu Asp Val Glu Arg Lys Arg Glu Phe Tyr Ile Pro Pro Glu Pro Ser
        195   200   205

Asn Asp Ala Ile Glu Ile Phe Ser Ser Gly Ile Ala Ser Gly Ile His
    210   215   220

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Phe Ser Lys Tyr Asn Asn Ile Pro Val Lys Val Thr Gly Ser Asp Val
225                 230             235             240


Pro Gln Pro Ile Gln His Phe Thr Ser Ala Asp Leu Arg Asp Ile Ile
            245             250             255


Ile Asp Asn Val Asn Lys Ser Gly Phe Lys Ile Pro Thr Pro Ile Gln
            260             265             270


Lys Cys Ser Ile Pro Val Ile Ser Ser Gly Arg Asp Leu Met Ala Cys
        275             280             285


Ala Gln Thr Gly Ser Gly Lys Thr Ala Ala Phe Leu Leu Pro Ile Leu
    290             295             300


Ser Lys Leu Leu Glu Asp Pro His Glu Leu Glu Leu Gly Arg Pro Gln
305             310             315             320


Val Val Ile Val Ser Pro Thr Arg Glu Leu Ala Ile Gln Ile Phe Asn
            325             330             335


Glu Ala Arg Lys Phe Ala Phe Glu Ser Tyr Leu Lys Ile Gly Ile Val
        340             345             350


Tyr Gly Gly Thr Ser Phe Arg His Gln Asn Glu Cys Ile Thr Arg Gly
        355             360             365


Cys His Val Val Ile Ala Thr Pro Gly Arg Leu Leu Asp Phe Val Asp
    370             375             380


Arg Thr Phe Ile Thr Phe Glu Asp Thr Arg Phe Val Val Leu Asp Glu
385             390             395             400


Ala Asp Arg Met Leu Asp Met Gly Phe Ser Glu Asp Met Arg Arg Ile
            405             410             415


Met Thr His Val Thr Met Arg Pro Glu His Gln Thr Leu Met Phe Ser
            420             425             430


Ala Thr Phe Pro Glu Glu Ile Gln Arg Met Ala Gly Glu Phe Leu Lys
        435             440             445


Asn Tyr Val Ser Val Ala Ile Gly Ile Val Gly Gly Ala Cys Ser Asp
    450             455             460
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Val Lys Gln Thr Ile Tyr Glu Val Asn Lys Tyr Ala Lys Arg Ser Lys
465             470             475             480


Leu Ile Glu Ile Leu Ser Glu Gln Ala Asp Gly Thr Ile Val Phe Val
            485             490             495


Glu Thr Lys Arg Gly Ala Asp Phe Leu Ala Ser Phe Leu Ser Glu Lys
        500             505             510


Glu Phe Pro Thr Thr Ser Ile His Gly Asp Arg Leu Gln Ser Gln Arg
        515             520             525


Glu Gln Ala Leu Arg Asp Phe Lys Asn Gly Ser Met Lys Val Leu Ile
    530             535             540


Ala Thr Ser Val Ala Ser Arg Gly Leu Asp Ile Lys Asn Ile Lys His
545             550             555             560


Val Ile Asn Tyr Asp Met Pro Ser Lys Ile Asp Asp Tyr Val His Arg
            565             570             575


Ile Gly Arg Thr Gly Cys Val Gly Asn Asn Gly Arg Ala Thr Ser Phe
        580             585             590


Phe Asp Pro Glu Lys Asp Arg Ala Ile Ala Ala Asp Leu Val Lys Ile
        595             600             605


Leu Glu Gly Ser Gly Gln Thr Val Pro Asp Phe Leu Arg Thr Cys Gly
    610             615             620


Ala Gly Gly Asp Gly Gly Tyr Ser Asn Gln Asn Phe Gly Gly Val Asp
625             630             635             640


Val Arg Gly Arg Gly Asn Tyr Val Gly Asp Ala Thr Asn Val Glu Glu
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Glu Glu Gln Trp Asp
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<213>   Homo sapiens

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<213>   Homo sapiens

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<213>   Homo sapiens

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1               5                   10                  15


Ser Ser Arg Ala Pro Asn Pro Val Asp Asp Glu Ser Trp
            20                  25


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<213> Homo sapiens

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tcatcagaaa tggatgatgg accttctcga agagatcatt tcatgaaaag tggatttgcc   180

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gccagagggc tggatattga aaatgtgcaa catgttatca attttgatct tccttctacc   1860

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<213> Rattus sp.

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gaaaccagca gcaagtgatt caggcagtgg tgacactttc cagagcagaa gtgggaatgc   840

ccgaggtgcc tacaaaggct aaatgaagaa agtagtaaca ggctctggaa agaattcttg   900

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tggaagtcag aaactgaagg aggtgaaagc agtgatagtc aaggtccaaa agtgacatat   480

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aaattttctt ttgggacttg tgtaatatct gtggtcatat atggagggac ccagtttggt   960

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gaaatccaga ggttggctgg ggatttttcta aagtccaatt atttgtttgt tgctgttggg   1260

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gacaccaaat gaggcaagaa tgaaagcatt gctgtccgcc tgcgacaaaa aagtttcaac   34560

gttctttttct gtcttggtca gggaacgggc ttacatcggt tgacaatgcg attgttccga   34620

caaaagagaa aaagaagaag aaaaaacatt gaaatggagg ataagttttg gggttttttgt   34680

tgggaggaat caatttgctt cgaaatctca aagtttcggg aaatttctaa tatttttttaa   34740

tgcaaaattt tggctgaaat tcggggggttt gagggtttttt tttaatgaaa aaaatagcat   34800

ttgaaaaact gaagttcatg agcttccgga tgacgttaaa a   34841

<210> 22
<211> 1748
<212> DNA
<213> Dictyostelium discoideum

<400> 22
gaattccgga ttttcgatca gaattgggtg tgaaaatcac tggtaaagat tgtccaaaac   60

caattcaatc atgggcacaa gctgggttaa ctgaaaaggt tcatttacta ttaaagaaat   120

ttcaatatga aaaaccaaca tcaattcaag cacaaactat acctgcaatt atgaatggtc   180

gtgatttaat tggtattgcc agaactggtt ccggtaaaac attggcattc cttttttaccaa   240

tgtttcgtca tatactggca caaccaaaat ctgcacctgg tgaaggtatg attgcattga   300

ttatgtcacc aactagagaa ttggcacttc aaattcatgt tgaatgtaaa aagtttttcaa   360

aagtacttgg attacgtacc gcttgtgttt atggtggtgc aagtataagt gaacaaatag   420

ccgaattgaa aagaggtgcc gatattgtcg tttgcacacc aggtcgtatg atcgatattt   480

tatgtgcaaa taatcgacgt atcaccaacc taagacgtgt aacattcttg gtgttggatg   540

aagccgatcg tatgtttgat atgggttttg gtccacaaat taattgtatc gtcgatagta   600

ttagacccga tcgtcaaacc attatgttct ctgcaacttt tcctccaaaa gttgagaatg   660

tcgcaaagaa gatcctaaac aaaccattgg aaatcattgc tggtggtaga agtatagttt   720

catcagatat tgaacaattt gtagaggtac gtccaactga aactagattt agacgtttaa   780

tagaattgct atcgatttgg tatcataaag gtcagatttt aatctttacc aatcgtcaag   840

agaccaccga caatctatat cgtcaacttt caaactctca atatcaatgt ctatcattac   900

atggtagtaa agatcaaacc gatcgtgatg aaaccattag tgactttaaa aataaggtta   960

aaaccatttt aatcgctaca ccattggcat cacgtggttt ggatatcaaa gatttaaatc   1020

ttgtggttaa tttcgattgc cctgatcatt tggaagatta tgttcatagg gtaggtagaa   1080

ctggtagagc aggaaatcgt ggtactgctt atacatttat cacacccgac gaagagagat   1140

tctcttcgtc aatcattaaa gctttggaac aatctggttc aaaagtaccc gatgaactta   1200

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gaaaattgaa tgatacctac gagaaaaaga gaaagaagg taaggatgta ctattggcac   1260

caaccggttt cactggtaga ggtcataaat ttgatgctgc cgaagaggat aaaaagaata   1320

ttgaaagaaa acaacaaaga aaagcatatg gtatcgaaga ggaagaagaa gaagaggatg   1380

aagataaaga aaaagctgaa aaggagaaat tggccgctgc ttccgctgaa aaagaaaaac   1440

aattattatc tgaaaaagaa aaattggatc ctgctaccac taatactatc gtcatacctg   1500

gtgtagatgg tacaatcatt acaccttctt cattacttca aaccgatcct tcagttcctg   1560

tgggtcaaca ggctatcaat caaatatttg gtatttcaca agttacctcc tccgaagaag   1620

caattaaaaa acttcaattg gccgctcaat taggtatgaa aggtaatatt caaaaattaa   1680

ataatcaaat aactccatta aatcaaactc atttcattga agaattagaa attaatgatt   1740

cggaattc                                                            1748


<210>   23
<211>   661
<212>   PRT
<213>   Drosophila melanogaster

<400>   23

Met Ser Asp Asp Trp Asp Asp Glu Pro Ile Val Asp Thr Arg Gly Ala
1               5                   10                  15


Arg Gly Gly Asp Trp Ser Asp Asp Glu Asp Thr Ala Lys Ser Phe Ser
            20                  25                  30


Gly Glu Ala Glu Gly Asp Gly Val Gly Gly Ser Gly Gly Glu Gly Gly
        35                  40                  45


Gly Tyr Gln Gly Gly Asn Arg Asp Val Phe Gly Arg Ile Gly Gly Gly
    50                  55                  60


Arg Gly Gly Gly Ala Gly Gly Tyr Arg Gly Gly Asn Arg Asp Gly Gly
65                  70                  75                  80


Gly Phe His Gly Gly Arg Arg Glu Gly Glu Arg Asp Phe Arg Gly Gly
                85                  90                  95

                        .

Glu Gly Gly Phe Arg Gly Gly Gln Gly Gly Ser Arg Gly Gly Gln Gly
            100                 105                 110


Gly Ser Arg Gly Gly Gln Gly Gly Phe Arg Gly Gly Glu Gly Gly Phe
        115                 120                 125


Arg Gly Arg Leu Tyr Glu Asn Glu Asp Gly Asp Glu Arg Arg Gly Arg
```

Leu Asp Arg Glu Glu Arg Gly Gly Glu Arg Arg Gly Arg Leu Asp Arg
145   150   155   160

Glu Glu Arg Gly Gly Glu Arg Gly Glu Arg Gly Asp Gly Gly Phe Ala
                165   170   175

Arg Arg Arg Arg Asn Glu Asp Asp Ile Asn Asn Asn Asn Asn Ile Ala
                180   185   190

Glu Asp Val Glu Arg Lys Arg Glu Phe Tyr Ile Pro Pro Glu Pro Ser
                195   200   205

Asn Asp Ala Ile Glu Ile Phe Ser Ser Gly Ile Ala Ser Gly Ile His
                210   215   220

Phe Ser Lys Tyr Asn Asn Ile Pro Val Lys Val Thr Gly Ser Asp Val
225   230   235   240

Pro Gln Pro Ile Gln His Phe Thr Ser Ala Asp Leu Arg Asp Ile Ile
                245   250   255

Ile Asp Asn Val Asn Lys Ser Gly Phe Lys Ile Pro Thr Pro Ile Gln
                260   265   270

Lys Cys Ser Ile Pro Val Ile Ser Ser Gly Arg Asp Leu Met Ala Cys
                275   280   285

Ala Gln Thr Gly Ser Gly Lys Thr Ala Ala Phe Leu Leu Pro Ile Leu
                290   295   300

Ser Lys Leu Leu Glu Asp Pro His Glu Leu Glu Leu Gly Arg Pro Gln
305   310   315   320

Val Val Ile Val Ser Pro Thr Arg Glu Leu Ala Ile Gln Ile Phe Asn
                325   330   335

Glu Ala Arg Lys Phe Ala Phe Glu Ser Tyr Leu Lys Ile Gly Ile Val
                340   345   350

Tyr Gly Gly Thr Ser Phe Arg His Gln Asn Glu Cys Ile Thr Arg Gly
                355   360   365

Cys His Val Val Ile Ala Thr Pro Gly Arg Leu Leu Asp Phe Val Asp
                370   375   380

Arg Thr Phe Ile Thr Phe Glu Asp Thr Arg Phe Val Val Leu Asp Glu
385   390   395   400

Ala Asp Arg Met Leu Asp Met Gly Phe Ser Glu Asp Met Arg Arg Ile
        405   410   415

Met Thr His Val Thr Met Arg Pro Glu His Gln Thr Leu Met Phe Ser
        420   425   430

Ala Thr Phe Pro Glu Glu Ile Gln Arg Met Ala Gly Glu Phe Leu Lys
        435   440   445

Asn Tyr Val Ser Val Ala Ile Gly Ile Val Gly Gly Ala Cys Ser Asp
        450   455   460

Val Lys Gln Thr Ile Tyr Glu Val Asn Lys Tyr Ala Lys Arg Ser Lys
465   470   475   480

Leu Ile Glu Ile Leu Ser Glu Gln Ala Asp Gly Thr Ile Val Phe Val
        485   490   495

Glu Thr Lys Arg Gly Ala Asp Phe Leu Ala Ser Phe Leu Ser Glu Lys
        500   505   510

Glu Phe Pro Thr Thr Ser Ile His Gly Asp Arg Leu Gln Ser Gln Arg
        515   520   525

Glu Gln Ala Leu Arg Asp Phe Lys Asn Gly Ser Met Lys Val Leu Ile
        530   535   540

Ala Thr Ser Val Ala Ser Arg Gly Leu Asp Ile Lys Asn Ile Lys His
545   550   555   560

Val Ile Asn Tyr Asp Met Pro Ser Lys Ile Asp Asp Tyr Val His Arg
        565   570   575

Ile Gly Arg Thr Gly Cys Val Gly Asn Asn Gly Arg Ala Thr Ser Phe
        580   585   590

Phe Asp Pro Glu Lys Asp Arg Ala Ile Ala Ala Asp Leu Val Lys Ile
        595   600   605

Leu Glu Gly Ser Gly Gln Thr Val Pro Asp Phe Leu Arg Thr Cys Gly
        610   615   620

```
Ala Gly Gly Asp Gly Gly Tyr Ser Asn Gln Asn Phe Gly Gly Val Asp
625                 630                 635                 640


Val Arg Gly Arg Gly Asn Tyr Val Gly Asp Ala Thr Asn Val Glu Glu
                645                 650                 655


Glu Glu Gln Trp Asp
            660



<210>  24
<211>  713
<212>  PRT
<213>  Rattus norvegicus

<400>  24

Met Gly Asp Glu Asp Trp Glu Ala Glu Ile Leu Lys Pro His Val Ser
1               5                   10                  15


Ser Tyr Val Pro Val Phe Glu Lys Asp Lys Tyr Ser Ser Gly Ala Asn
            20                  25                  30


Gly Asp Thr Phe Asn Arg Thr Ser Ala Ser Ser Ser Glu Met Glu Asp
        35                  40                  45


Gly Pro Ser Gly Arg Asp His Phe Met Arg Ser Gly Phe Ser Ser Gly
    50                  55                  60


Arg Asn Leu Gly Asn Arg Asp Ile Gly Glu Ser Ser Lys Arg Glu Thr
65                  70                  75                  80


Thr Ser Thr Thr Gly Gly Phe Gly Arg Gly Lys Gly Phe Gly Asn Arg
                85                  90                  95


Gly Phe Leu Asn Asn Lys Phe Glu Glu Gly Asp Ser Ser Gly Phe Trp
            100                 105                 110


Lys Glu Ser Thr Asn Asp Cys Glu Asp Thr Gln Thr Arg Ser Arg Gly
        115                 120                 125


Phe Ser Lys Arg Gly Gly Tyr Pro Asp Gly Asn Asp Ser Glu Ala Ser
    130                 135                 140


Gly Pro Phe Arg Arg Gly Gly Arg Asp Ser Glu Tyr Asp Gln Asp Gln
145                 150                 155                 160


Gly Ser Gln Arg Gly Gly Gly Leu Phe Gly Ser Arg Lys Pro Ala Ala
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                165                    170                    175


Ser Asp Ser Gly Ser Gly Asp Thr Phe Gln Ser Arg Ser Gly Asn Ala
            180                 185                 190


Arg Gly Ala Tyr Lys Gly Leu Asn Glu Glu Val Val Thr Gly Ser Gly
            195                 200                 205


Lys Asn Ser Trp Lys Ser Glu Ala Glu Gly Gly Glu Ser Ser Asp Ile
        210                 215                 220


Gln Gly Pro Lys Val Thr Tyr Ile Pro Pro Pro Pro Glu Asp Glu
225                 230                 235                 240


Asp Ser Ile Phe Ala His Tyr Gln Thr Gly Ile Asn Phe Asp Lys Tyr
            245                 250                 255


Asp Thr Ile Leu Val Glu Val Ser Gly His Asp Ala Pro Pro Ala Ile
            260                 265                 270


Leu Thr Phe Glu Glu Ala Asn Leu Cys Gln Thr Leu Asn Asn Asn Ile
        275                 280                 285


Ala Lys Ala Gly Tyr Thr Lys Leu Thr Pro Val Gln Lys Tyr Ser Ile
        290                 295                 300


Pro Ile Val Leu Ala Gly Arg Asp Leu Met Ala Cys Ala Gln Thr Gly
305                 310                 315                 320


Ser Gly Lys Thr Ala Ala Phe Leu Leu Pro Ile Leu Ala His Met Met
            325                 330                 335


Arg Asp Gly Ile Thr Ala Ser Arg Phe Lys Glu Leu Gln Glu Pro Glu
            340                 345                 350


Cys Ile Ile Val Ala Pro Thr Arg Glu Leu Ile Asn Gln Ile Tyr Leu
        355                 360                 365


Glu Ala Arg Lys Phe Ser Phe Gly Thr Cys Val Arg Ala Val Val Ile
        370                 375                 380


Tyr Gly Gly Thr Gln Phe Gly His Ser Ile Arg Gln Ile Val Gln Gly
385                 390                 395                 400


Cys Asn Ile Leu Cys Ala Thr Pro Gly Arg Leu Met Asp Ile Ile Gly
            405                 410                 415
```

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Lys Glu Lys Ile Gly Leu Lys Gln Val Lys Tyr Leu Val Leu Asp Glu
            420             425             430

Ala Asp Arg Met Leu Asp Met Gly Phe Gly Pro Glu Met Lys Lys Leu
            435             440             445

Ile Ser Cys Pro Gly Met Pro Ser Lys Glu Gln Arg Gln Thr Leu Leu
    450             455             460

Phe Ser Ala Thr Phe Pro Glu Glu Ile Gln Arg Leu Ala Gly Glu Phe
465             470             475                         480

Leu Lys Ser Asn Tyr Leu Phe Val Ala Val Gly Gln Val Gly Gly Ala
                485             490             495

Cys Arg Asp Val Gln Gln Ser Ile Leu Gln Val Gly Pro Val Phe Lys
            500             505             510

Lys Arg Lys Leu Val Glu Ile Leu Arg Asn Ile Gly Asp Glu Arg Pro
            515             520             525

Met Val Phe Val Glu Thr Lys Lys Lys Ala Asp Phe Ile Ala Thr Phe
    530             535             540

Leu Cys Gln Glu Lys Ile Ser Thr Thr Ser Ile His Gly Asp Arg Glu
545             550             555             560

Gln Arg Glu Arg Glu Gln Ala Leu Gly Asp Phe Arg Cys Gly Lys Cys
            565             570             575

Pro Val Leu Val Ala Thr Ser Val Ala Ala Arg Gly Leu Asp Ile Glu
            580             585             590

Asn Val Gln His Val Ile Asn Phe Asn Leu Pro Ser Thr Ile Asp Glu
            595             600             605

Tyr Val His Arg Ile Gly Arg Thr Gly Arg Cys Gly Asn Thr Gly Arg
    610             615             620

Ala Ile Ser Phe Phe Asp Thr Glu Ser Asp Asn His Leu Ala Gln Pro
625             630             635             640

Leu Val Lys Val Leu Ser Asp Ala Gln Gln Asp Val Pro Ala Trp Leu
            645             650             655
```

Glu Glu Ile Ala Phe Ser Ser Tyr Ala Pro Pro Ser Phe Ser Asn Ser
        660   665   670

Thr Arg Gly Ala Val Phe Ala Ser Phe Asp Thr Arg Lys Asn Phe Gln
        675   680   685

Gly Lys Asn Thr Leu Asn Thr Ala Gly Ile Ser Ser Ala Gln Ala Pro
        690   695   700

Asn Pro Val Asp Asp Glu Ser Trp Asp
705   710

<210> 25
<211> 637
<212> PRT
<213> Mus musculus

<400> 25

Phe Gly Arg Gly Lys Gly Phe Gly Asn Arg Gly Phe Leu Asn Asn Lys
1   5   10   15

Phe Glu Glu Gly Asp Ser Ser Gly Phe Trp Lys Glu Ser Asn Asn Asp
        20   25   30

Cys Glu Asp Asn Gln Thr Arg Ser Arg Gly Phe Ser Lys Arg Gly Gly
        35   40   45

Cys Gln Asp Gly Asn Asp Ser Glu Ala Ser Gly Pro Phe Arg Arg Gly
        50   55   60

Gly Arg Gly Ser Phe Arg Gly Cys Arg Gly Gly Phe Gly Leu Gly Arg
65   70   75   80

Pro Asn Ser Glu Ser Asp Gln Asp Gln Gly Thr Gln Cys Gly Gly Gly
                85   90   95

Phe Leu Val Leu Gly Lys Pro Ala Ala Ser Asp Ser Gly Asn Gly Asp
        100   105   110

Thr Tyr Gln Ser Arg Ser Gly Ser Gly Arg Gly Gly Tyr Lys Gly Leu
        115   120   125

Asn Glu Glu Val Val Thr Gly Ser Gly Lys Asn Ser Trp Lys Ser Glu
        130   135   140

Thr Glu Gly Gly Glu Ser Ser Asp Ser Gln Gly Pro Lys Val Thr Tyr

```
145                    150                    155                    160


Ile Pro Pro Pro Pro Glu Asp Glu Asp Ser Ile Phe Ala His Tyr
            165                 170                 175


Gln Thr Gly Ile Asn Phe Asp Lys Tyr Asp Thr Ile Leu Val Glu Val
            180                 185                 190


Ser Gly His Asp Ala Pro Pro Ala Ile Leu Thr Phe Glu Glu Ala Asn
            195                 200                 205


Leu Cys Gln Thr Leu Asn Asn Asn Ile Arg Lys Ala Gly Tyr Thr Lys
        210                 215                 220


Leu Thr Pro Val Gln Lys Tyr Thr Ile Pro Ile Val Leu Ala Gly Arg
225                 230                 235                 240


Asp Leu Met Ala Cys Ala Gln Thr Gly Ser Gly Lys Thr Ala Ala Phe
                245                 250                 255


Leu Leu Pro Ile Leu Ala His Met Met Arg Asp Gly Ile Thr Ala Ser
            260                 265                 270


Arg Phe Lys Glu Leu Gln Glu Pro Glu Cys Ile Ile Val Ala Pro Thr
        275                 280                 285


Arg Glu Leu Ile Asn Gln Ile Tyr Leu Glu Ala Arg Lys Phe Ser Phe
        290                 295                 300


Gly Thr Cys Val Ile Ser Val Val Ile Tyr Gly Gly Thr Gln Phe Gly
305                 310                 315                 320


His Ser Val Arg Gln Ile Val Gln Gly Cys Asn Ile Leu Cys Ala Thr
                325                 330                 335


Pro Gly Arg Leu Met Asp Ile Ile Gly Lys Glu Lys Ile Gly Leu Lys
            340                 345                 350


Gln Val Lys Tyr Leu Val Leu Asp Glu Ala Asp Ser Met Leu Asp Met
            355                 360                 365


Gly Phe Ala Pro Glu Ile Lys Lys Leu Ile Ser Cys Pro Gly Met Pro
        370                 375                 380


Ser Lys Glu Gln His Gln Thr Leu Leu Phe Ser Ala Thr Phe Pro Glu
385                 390                 395                 400
```

Glu Ile Gln Arg Leu Ala Gly Asp Phe Leu Lys Ser Asn Tyr Leu Phe
                405   410   415

Val Ala Val Gly Gln Val Gly Gly Ala Cys Arg Asp Val Gln Gln Thr
            420   425   430

Ile Leu Gln Val Gly Gln Tyr Gln Lys Glu Lys Ser Leu Leu Arg Phe
            435   440   445

Tyr Glu Asn Ile Gly Asp Glu Arg Thr Met Val Phe Val Glu Thr Lys
        450   455   460

Lys Lys Ala Asp Phe Ile Ala Thr Phe Leu Cys Gln Glu Lys Ile Ser
465   470   475   480

Ser Thr Ser Ile His Gly Asp Arg Glu Gln Arg Glu Arg Glu Gln Ala
                485   490   495

Leu Gly Asp Phe Arg Cys Gly Lys Cys Pro Val Leu Val Ala Thr Ser
            500   505   510

Val Ala Ala Arg Gly Leu Asp Ile Glu Asn Val Gln His Val Ile Asn
            515   520   525

Phe Asp Leu Pro Ser Thr Ile Asp Glu Tyr Val His Arg Ile Gly Arg
        530   535   540

Thr Gly Arg Cys Gly Asn Thr Gly Arg Ala Ile Ser Phe Phe Asp Thr
545   550   555   560

Asp Ser Asp Asn His Leu Ala Gln Pro Leu Val Lys Val Leu Ser Asp
                565   570   575

Ala Gln Gln Asp Val Pro Ala Trp Leu Glu Glu Ile Ala Phe Ser Thr
            580   585   590

Tyr Val Pro Pro Ser Phe Ser Ser Ser Thr Arg Gly Gly Ala Val Phe
        595   600   605

Ala Ser Val Asp Thr Arg Lys Asn Tyr Gln Gly Lys Ala His Val Glu
        610   615   620

Tyr Ser Gly Asp Phe Phe Phe Thr Ser Ser Gln Ser Ser
625   630   635

<210> 26
<211> 662
<212> PRT
<213> Mus musculus

<400> 26

Met Ser His Val Ala Val Glu Asn Ala Leu Gly Leu Asp Gln Gln Phe
1   5   10   15

Ala Gly Leu Asp Leu Asn Ser Ser Asp Asn Gln Ser Gly Gly Ser Thr
            20   25   30

Ala Ser Lys Gly Arg Tyr Ile Pro Pro His Leu Arg Asn Arg Glu Ala
        35   40   45

Thr Lys Gly Phe Tyr Asp Lys Asp Ser Ser Gly Trp Ser Ser Ser Lys
    50   55   60

Asp Lys Asp Ala Tyr Ser Ser Phe Gly Ser Arg Gly Asp Ser Arg Gly
65   70   75   80

Lys Ser Ser Phe Phe Gly Asp Arg Gly Ser Gly Ser Arg Gly Arg Phe
            85   90   95

Asp Asp Arg Gly Arg Gly Asp Tyr Asp Gly Ile Gly Gly Arg Gly Asp
            100   105   110

Arg Ser Gly Phe Gly Lys Phe Glu Arg Gly Gly Asn Ser Arg Trp Cys
        115   120   125

Asp Lys Ser Asp Glu Asp Asp Trp Ser Lys Pro Leu Pro Pro Ser Glu
    130   135   140

Arg Leu Glu Gln Glu Leu Phe Ser Gly Gly Asn Thr Gly Ile Asn Phe
145   150   155   160

Glu Lys Tyr Asp Asp Ile Pro Val Glu Ala Thr Gly Asn Asn Cys Pro
            165   170   175

Pro His Ile Glu Ser Phe Ser Asp Val Glu Met Gly Glu Ile Ile Met
            180   185   190

Gly Asn Ile Glu Leu Thr Arg Tyr Thr Arg Pro Thr Pro Val Gln Lys
        195   200   205

His Ala Ile Pro Ile Ile Lys Glu Lys Arg Asp Leu Met Ala Cys Ala

Gln Thr Gly Ser Gly Lys Thr Ala Ala Phe Leu Leu Pro Ile Leu Ser
225   230   235   240

Gln Ile Tyr Ala Asp Gly Pro Gly Glu Ala Leu Arg Ala Met Lys Glu
            245   250   255

Asn Gly Arg Tyr Gly Arg Arg Lys Gln Tyr Pro Ile Ser Leu Val Leu
            260   265   270

Ala Pro Thr Arg Glu Leu Ala Val Gln Ile Tyr Glu Glu Ala Arg Lys
            275   280   285

Phe Ser Tyr Arg Ser Arg Val Arg Pro Cys Val Val Tyr Gly Gly Ala
        290   295   300

Glu Ile Gly Gln Gln Ile Arg Asp Leu Glu Arg Gly Cys His Leu Leu
305   310   315   320

Val Ala Thr Pro Gly Arg Leu Val Asp Met Met Glu Arg Gly Lys Ile
            325   330   335

Gly Leu Asp Phe Cys Lys Tyr Leu Val Leu Asp Glu Ala Asp Arg Met
            340   345   350

Leu Asp Met Gly Phe Glu Pro Gln Ile Arg Arg Ile Val Glu Gln Asp
            355   360   365

Thr Met Pro Pro Lys Gly Val Arg His Thr Met Met Phe Ser Ala Thr
    370   375   380

Phe Pro Lys Glu Ile Gln Met Leu Ala Arg Asp Phe Leu Asp Glu Tyr
385   390   395   400

Ile Phe Leu Ala Val Gly Arg Val Gly Ser Thr Ser Glu Asn Ile Thr
            405   410   415

Gln Lys Val Val Trp Val Glu Glu Ile Asp Lys Arg Ser Phe Leu Leu
            420   425   430

Asp Leu Leu Asn Ala Thr Gly Lys Asp Ser Leu Thr Leu Val Phe Val
        435   440   445

Glu Thr Lys Lys Gly Ala Asp Ser Leu Glu Asp Phe Leu Tyr His Glu
    450   455   460

Gly Tyr Ala Cys Thr Ser Ile His Gly Asp Arg Ser Gln Arg Asp Arg
465   470   475   480

Glu Glu Ala Leu His Gln Phe Arg Ser Gly Lys Ser Pro Ile Leu Val
                485   490   495

Ala Thr Ala Val Ala Ala Arg Gly Leu Asp Ile Ser Asn Val Lys His
                500   505   510

Val Ile Asn Phe Asp Leu Pro Ser Asp Ile Glu Glu Tyr Val His Arg
                515   520   525

Ile Gly Arg Thr Gly Arg Val Gly Asn Leu Gly Leu Ala Thr Ser Phe
        530   535   540

Phe Asn Glu Arg Asn Ile Asn Ile Thr Lys Asp Leu Leu Asp Leu Leu
545   550   555   560

Val Glu Ala Lys Gln Glu Val Pro Ser Trp Leu Glu Asn Met Ala Phe
                565   570   575

Glu His His Tyr Lys Gly Ser Ser Arg Gly Arg Ser Lys Ser Ser Arg
                580   585   590

Phe Ser Gly Gly Phe Gly Ala Arg Asp Tyr Arg Gln Ser Ser Gly Ala
        595   600   605

Ser Ser Ser Ser Phe Ser Ser Ser Arg Ala Ser Ser Ser Arg Ser Gly
        610   615   620

Gly Gly Gly His Gly Gly Ser Arg Gly Phe Gly Gly Gly Gly Tyr Gly
625   630   635   640

Gly Phe Tyr Asn Ser Asp Gly Tyr Gly Gly Asn Tyr Asn Ser Gln Gly
                645   650   655

Val Asp Trp Trp Gly Asn
        660

<210> 27
<211> 662
<212> PRT
<213> Homo sapiens

<400> 27

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Met Ser His Val Ala Val Glu Asn Ala Leu Gly Leu Asp Gln Gln Phe
1               5                   10                  15

Ala Gly Leu Asp Leu Asn Ser Ser Asp Asn Gln Ser Gly Gly Ser Thr
            20                  25                  30

Ala Ser Lys Gly Arg Tyr Ile Pro Pro His Leu Arg Asn Arg Glu Ala
        35                  40                  45

Thr Lys Gly Phe Tyr Asp Lys Asp Ser Ser Gly Trp Ser Ser Ser Lys
    50                  55                  60

Asp Lys Asp Ala Tyr Ser Ser Phe Gly Ser Arg Ser Asp Ser Arg Gly
65                  70                  75                  80

Lys Ser Ser Phe Phe Ser Asp Arg Gly Ser Gly Ser Arg Gly Arg Phe
                85                  90                  95

Asp Asp Arg Gly Arg Ser Asp Tyr Asp Gly Ile Gly Ser Arg Gly Asp
            100                 105                 110

Arg Ser Gly Phe Gly Lys Phe Glu Arg Gly Gly Asn Ser Arg Trp Cys
        115                 120                 125

Asp Lys Ser Asp Glu Asp Asp Trp Ser Lys Pro Leu Pro Pro Ser Glu
    130                 135                 140

Arg Leu Glu Gln Glu Leu Phe Ser Gly Gly Asn Thr Gly Ile Asn Phe
145                 150                 155                 160

Glu Lys Tyr Asp Asp Ile Pro Val Glu Ala Thr Gly Asn Asn Cys Pro
            165                 170                 175

Pro His Ile Glu Ser Phe Ser Asp Val Glu Met Gly Glu Ile Ile Met
        180                 185                 190

Gly Asn Ile Glu Leu Thr Arg Tyr Thr Arg Pro Thr Pro Val Gln Lys
        195                 200                 205

His Ala Ile Pro Ile Ile Lys Glu Lys Arg Asp Leu Met Ala Cys Ala
    210                 215                 220

Gln Thr Gly Ser Gly Lys Thr Ala Ala Phe Leu Leu Pro Ile Leu Ser
225                 230                 235                 240

Gln Ile Tyr Ser Asp Gly Pro Gly Glu Ala Leu Arg Ala Met Lys Glu
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                    245                      250                      255


Asn Gly Arg Tyr Gly Arg Arg Lys Gln Tyr Pro Ile Ser Leu Val Leu
            260                 265                 270


Ala Pro Thr Arg Glu Leu Ala Val Gln Ile Tyr Glu Glu Ala Arg Lys
            275                 280                 285


Phe Ser Tyr Arg Ser Arg Val Arg Pro Cys Val Val Tyr Gly Gly Ala
    290                 295                 300


Asp Ile Gly Gln Gln Ile Arg Asp Leu Glu Arg Gly Cys His Leu Leu
305                 310                 315                 320


Val Ala Thr Pro Gly Arg Leu Val Asp Met Met Glu Arg Gly Lys Ile
            325                 330                 335


Gly Leu Asp Phe Cys Lys Tyr Leu Val Leu Asp Glu Ala Asp Arg Met
            340                 345                 350


Leu Asp Met Gly Phe Glu Pro Gln Ile Arg Arg Ile Val Glu Gln Asp
            355                 360                 365


Thr Met Pro Pro Lys Gly Val Arg His Thr Met Met Phe Ser Ala Thr
    370                 375                 380


Phe Pro Lys Glu Ile Gln Met Leu Ala Arg Asp Phe Leu Asp Glu Tyr
385                 390                 395                 400


Ile Phe Leu Ala Val Gly Arg Val Gly Ser Thr Ser Glu Asn Ile Thr
            405                 410                 415


Gln Lys Val Val Trp Val Glu Glu Ser Asp Lys Arg Ser Phe Leu Leu
            420                 425                 430


Asp Leu Leu Asn Ala Thr Gly Lys Asp Ser Leu Thr Leu Val Phe Val
            435                 440                 445


Glu Thr Lys Lys Gly Ala Asp Ser Leu Glu Asp Phe Leu Tyr His Glu
    450                 455                 460


Gly Tyr Ala Cys Thr Ser Ile His Gly Asp Arg Ser Gln Arg Asp Arg
465                 470                 475                 480


Glu Glu Ala Leu His Gln Phe Arg Ser Gly Lys Ser Pro Ile Leu Val
            485                 490                 495
```

```
Ala Thr Ala Val Ala Ala Arg Gly Leu Asp Ile Ser Asn Val Lys His
        500                 505                 510

Val Ile Asn Phe Asp Leu Pro Ser Asp Ile Glu Glu Tyr Val His Arg
        515                 520                 525

Ile Gly Arg Thr Gly Arg Val Gly Asn Leu Gly Leu Ala Thr Ser Phe
        530                 535                 540

Phe Asn Glu Arg Asn Ile Asn Ile Thr Lys Asp Leu Leu Asp Leu Leu
545                 550                 555                 560

Val Glu Ala Lys Gln Glu Val Pro Ser Trp Leu Glu Asn Met Ala Tyr
                565                 570                 575

Glu His His Tyr Lys Gly Ser Ser Arg Gly Arg Ser Lys Ser Ser Arg
                580                 585                 590

Phe Ser Gly Gly Phe Gly Ala Arg Asp Tyr Arg Gln Ser Ser Gly Ala
        595                 600                 605

Ser Ser Ser Ser Phe Ser Ser Ser Arg Ala Ser Ser Ser Arg Ser Gly
        610                 615                 620

Gly Gly Gly His Gly Ser Ser Arg Gly Phe Gly Gly Gly Gly Tyr Gly
625                 630                 635                 640

Gly Phe Tyr Asn Ser Asp Gly Tyr Gly Gly Asn Tyr Asn Ser Gln Gly
                645                 650                 655

Val Asp Trp Trp Gly Asn
            660,


<210>   28
<211>   697
<212>   PRT
<213>   Xenopus laevis

<400>   28

Met Ser His Val Ala Val Glu Asn Val Leu Asn Leu Asp Gln Gln Phe
1               5                   10                  15

Ala Gly Leu Asp Leu Asn Ser Ala Asp Ala Glu Ser Gly Val Ala Gly
            20                  25                  30
```

Thr Lys Gly Arg Tyr Ile Pro Pro His Leu Arg Asn Lys Glu Ala Ser
        35   40   45

Arg Asn Asp Ser Asn Trp Asp Ser Gly Arg Gly Gly Asn Gly Tyr Ile
        50   55   60

Asn Gly Met Gln Asp Asp Arg Asp Gly Arg Met Asn Gly Tyr Asp Arg
65   70   75   80

Gly Gly Tyr Gly Ser Arg Gly Thr Gly Arg Ser Asp Arg Gly Phe Tyr
                85   90   95

Asp Arg Glu Asn Ser Gly Trp Asn Ser Gly Arg Asp Lys Asp Ala Tyr
            100   105   110

Ser Ser Phe Gly Ser Arg Gly Asp Arg Gly Lys Gly Ser Leu Phe Asn
        115   120   125

Glu Arg Gly Ser Gly Ser Arg Arg Thr Asp Asp Arg Arg Gln Asp Gly
    130   135   140

Phe Asp Gly Met Gly Asn Arg Ser Asp Lys Ser Gly Phe Gly Arg Phe
145   150   155   160

Asp Arg Gly Asn Ser Arg Trp Ser Asp Asp Arg Asn Asp Glu Asp Asp
            165   170   175

Trp Ser Lys Pro Leu Ala Pro Asn Asp Arg Val Glu Gln Glu Leu Phe
        180   185   190

Ser Gly Ser Asn Thr Gly Ile Asn Phe Glu Lys Tyr Asp Asp Ile Pro
        195   200   205

Val Glu Ala Thr Gly Ser Asn Cys Pro Pro His Ile Glu Ser Phe His
    210   215   220

Asp Val Thr Met Gly Glu Ile Ile Met Gly Asn Ile Gln Leu Thr Arg
225   230   235   240

Tyr Thr Arg Pro Thr Pro Val Gln Lys His Ala Ile Pro Ile Ile Ile
            245   250   255

Glu Lys Arg Asp Leu Met Ala Cys Ala Gln Thr Gly Ser Gly Lys Thr
            260   265   270

Ala Ala Phe Leu Leu Pro Ile Leu Ser Gln Ile Tyr Ala Asp Gly Pro

Gly Asp Ala Met Lys His Leu Gln Glu Asn Gly Arg Tyr Gly Arg Arg
    290   295   300

Lys Gln Phe Pro Leu Ser Leu Val Leu Ala Pro Thr Arg Glu Leu Ala
305   310   315   320

Val Gln Ile Tyr Glu Glu Ala Arg Lys Phe Ala Tyr Arg Ser Arg Val
                325   330   335

Arg Pro Cys Val Val Tyr Gly Gly Ala Asp Ile Gly Gln Gln Ile Arg
            340   345   350

Asp Leu Glu Arg Gly Cys His Leu Leu Val Ala Thr Pro Gly Arg Leu
        355   360   365

Val Asp Met Met Glu Arg Gly Lys Ile Gly Leu Asp Phe Cys Lys Tyr
    370   375   380

Leu Val Leu Asp Glu Ala Asp Arg Met Leu Asp Met Gly Phe Glu Pro
385   390   395   400

Gln Ile Arg Arg Ile Val Glu Gln Asp Thr Met Pro Pro Lys Gly Val
                405   410   415

Arg Gln Thr Met Met Phe Ser Ala Thr Phe Pro Lys Glu Ile Gln Ile
            420   425   430

Leu Ala Arg Asp Phe Leu Asp Glu Tyr Ile Phe Leu Ala Val Gly Arg
        435   440   445

Val Gly Ser Thr Ser Glu Asn Ile Thr Gln Lys Val Val Trp Val Glu
    450   455   460

Glu Met Asp Lys Arg Ser Phe Leu Leu Asp Leu Leu Asn Ala Thr Gly
465   470   475   480

Lys Asp Ser Leu Thr Leu Val Phe Val Glu Thr Lys Lys Gly Ala Asp
            485   490   495

Ala Leu Glu Asp Phe Leu Tyr His Glu Gly Tyr Ala Cys Thr Ser Ile
        500   505   510

His Gly Asp Arg Ser Gln Arg Asp Arg Glu Glu Ala Leu His Gln Phe
        515   520   525

```
Arg Ser Gly Lys Ser Pro Ile Leu Val Ala Thr Ala Val Ala Ala Arg
    530             535             540

Gly Leu Asp Ile Ser Asn Val Lys His Val Ile Asn Phe Asp Leu Pro
545             550             555                 560

Ser Asp Ile Glu Glu Tyr Val His Arg Ile Gly Arg Thr Gly Arg Val
                565             570             575

Gly Asn Leu Gly Leu Ala Thr Ser Phe Phe Asn Glu Lys Asn Ile Asn
            580             585             590

Ile Thr Lys Asp Leu Leu Asp Leu Leu Val Glu Ala Lys Gln Glu Val
        595             600             605

Pro Ser Trp Leu Glu Asn Met Ala Tyr Glu Gln His His Lys Ser Ser
    610             615             620

Ser Arg Gly Arg Ser Lys Ser Arg Phe Ser Gly Gly Phe Gly Ala Lys
625             630             635                 640

Asp Tyr Arg Gln Ser Ser Gly Ala Gly Ser Ser Phe Gly Ser Ser Arg
            645             650             655

Gly Gly Arg Ser Ser Gly His Gly Gly Ser Arg Gly Phe Gly Gly Gly
            660             665             670

Tyr Gly Gly Phe Tyr Asn Ser Asp Gly Tyr Gly Gly Asn Tyr Gly Gly
        675             680             685

Ser Ser Gln Val Asp Trp Trp Gly Asn
    690             695


<210>   29
<211>   660
<212>   PRT
<213>   Mus musculus

<400>   29

Met Ser His Val Ala Glu Glu Asp Glu Leu Gly Leu Asp Gln Gln Leu
1               5               10              15

Ala Gly Leu Asp Leu Thr Ser Arg Asp Ser Gln Ser Gly Gly Ser Thr
            20              25              30
```

```
Ala Ser Lys Gly Arg Tyr Ile Pro Pro His Leu Arg Asn Arg Glu Ala
    35              40              45

Ala Lys Ala Phe Tyr Asp Lys Asp Gly Ser Arg Trp Ser Lys Asp Lys
    50              55              60

Asp Ala Tyr Ser Ser Phe Gly Ser Arg Ser Asp Thr Arg Ala Lys Ser
65              70              75              80

Ser Phe Phe Ser Asp Arg Gly Gly Ser Gly Ser Arg Gly Arg Phe Asp
            85              90              95

Glu Arg Gly Arg Ser Asp Tyr Glu Ser Val Gly Ser Arg Gly Gly Arg
        100             105             110

Ser Gly Phe Gly Lys Phe Glu Arg Gly Gly Asn Ser Arg Trp Cys Asp
        115             120             125

Lys Ala Asp Glu Asp Asp Trp Ser Lys Pro Leu Pro Pro Ser Glu Arg
    130             135             140

Leu Glu Gln Glu Leu Phe Ser Gly Gly Asn Thr Gly Ile Asn Phe Glu
145             150             155             160

Lys Tyr Asp Asp Ile Pro Val Glu Ala Thr Gly Asn Asn Cys Pro Pro
            165             170             175

His Ile Glu Ser Phe Ser Asp Val Glu Met Gly Glu Ile Ile Met Gly
            180             185             190

Asn Ile Glu Leu Thr Arg Tyr Thr Arg Pro Thr Pro Val Gln Lys His
        195             200             205

Ala Ile Pro Ile Ile Lys Glu Lys Arg Asp Leu Met Ala Cys Ala Gln
    210             215             220

Thr Gly Ser Gly Lys Thr Ala Ala Phe Leu Leu Pro Ile Leu Ser Gln
225             230             235             240

Ile Tyr Thr Asp Gly Pro Gly Glu Ala Leu Arg Ala Met Lys Glu Asn
            245             250             255

Gly Lys Tyr Gly Arg Arg Lys Gln Tyr Pro Ile Ser Leu Val Leu Ala
            260             265             270

Pro Thr Arg Glu Leu Ala Val Gln Ile Tyr Glu Glu Ala Arg Lys Phe
```

Ser Tyr Arg Ser Arg Val Arg Pro Cys Val Val Tyr Gly Gly Ala Asp
      290   295   300

Ile Gly Gln Gln Ile Arg Asp Leu Glu Arg Gly Cys His Leu Leu Val
305   310   315   320

Ala Thr Pro Gly Arg Leu Val Asp Met Met Glu Arg Gly Lys Ile Gly
                325   330   335

Leu Asp Phe Cys Lys Tyr Leu Val Leu Asp Glu Ala Asp Arg Met Leu
             340   345   350

Asp Met Gly Phe Glu Pro Gln Ile Arg Arg Ile Val Glu Gln Asp Thr
             355   360   365

Met Pro Pro Lys Gly Val Arg His Thr Met Met Phe Ser Ala Thr Phe
      370   375   380

Pro Lys Glu Ile Gln Met Leu Ala Arg Asp Phe Leu Asp Glu Tyr Ile
385   390   395   400

Phe Leu Ala Val Gly Arg Val Gly Ser Thr Ser Glu Asn Ile Thr Gln
             405   410   415

Lys Val Val Trp Val Glu Glu Ala Asp Lys Arg Ser Phe Leu Leu Asp
             420   425   430

Leu Leu Asn Ala Thr Gly Lys Asp Ser Leu Ile Leu Val Phe Val Glu
             435   440   445

Thr Lys Lys Gly Ala Asp Ser Leu Glu Asp Phe Leu Tyr His Glu Gly
      450   455   460

Tyr Ala Cys Thr Ser Ile His Gly Asp Arg Ser Gln Arg Asp Arg Glu
465   470   475   480

Glu Ala Leu His Gln Phe Arg Ser Gly Lys Ser Pro Ile Leu Val Ala
             485   490   495

Thr Ala Val Ala Ala Arg Gly Leu Asp Ile Ser Asn Val Lys His Val
             500   505   510

Ile Asn Phe Asp Leu Pro Ser Asp Ile Glu Glu Tyr Val His Arg Ile
             515   520   525

Gly Arg Thr Gly Arg Val Gly Asn Leu Gly Leu Ala Thr Ser Phe Phe
    530   535   540

Asn Glu Arg Asn Ile Asn Ile Thr Lys Asp Leu Leu Asp Leu Leu Val
545   550   555   560

Glu Ala Lys Gln Glu Val Pro Ser Trp Leu Glu Asn Met Ala Phe Glu
                565   570   575

His His Tyr Lys Gly Gly Ser Arg Gly Arg Ser Lys Ser Arg Phe Ser
            580   585   590

Gly Gly Phe Gly Ala Arg Asp Tyr Arg Gln Ser Ser Gly Ala Ser Ser
        595   600   605

Ser Ser Phe Ser Ser Gly Arg Ala Ser Asn Ser Arg Ser Gly Gly Gly
    610   615   620

Ser His Gly Ser Ser Arg Gly Phe Gly Gly Gly Ser Tyr Gly Gly Phe
625   630   635   640

Tyr Asn Ser Asp Gly Tyr Gly Gly Asn Tyr Ser Ser Gln Gly Val Asp
            645   650   655

Trp Trp Gly Asn
            660

<210>   30
<211>   660
<212>   PRT
<213>   Homo sapiens

<400>   30

Met Ser His Val Val Val Lys Asn Asp Pro Glu Leu Asp Gln Gln Leu
1   5   10   15

Ala Asn Leu Asp Leu Asn Ser Glu Lys Gln Ser Gly Gly Ala Ser Thr
            20   25   30

Ala Ser Lys Gly Arg Tyr Ile Pro Pro His Leu Arg Asn Lys Glu Ala
        35   40   45

Ser Lys Gly Phe His Asp Lys Asp Ser Ser Gly Trp Ser Cys Ser Lys
    50   55   60

```
Asp Lys Asp Ala Tyr Ser Ser Phe Gly Ser Arg Asp Ser Arg Gly Lys
65              70              75                      80


Pro Gly Tyr Phe Ser Glu Arg Gly Ser Gly Ser Arg Gly Arg Phe Asp
                85              90                      95


Asp Arg Gly Arg Ser Asp Tyr Asp Gly Ile Gly Asn Arg Glu Arg Pro
            100             105             110


Gly Phe Gly Arg Phe Glu Arg Ser Gly His Ser Arg Trp Cys Asp Lys
        115             120             125


Ser Val Glu Asp Asp Trp Ser Lys Pro Leu Pro Pro Ser Glu Arg Leu
    130             135             140


Glu Gln Glu Leu Phe Ser Gly Gly Asn Thr Gly Ile Asn Phe Glu Lys
145             150             155             160


Tyr Asp Asp Ile Pro Val Glu Ala Thr Gly Ser Asn Cys Pro Pro His
            165             170             175


Ile Glu Asn Phe Ser Asp Ile Asp Met Gly Glu Ile Ile Met Gly Asn
            180             185             190


Ile Glu Leu Thr Arg Tyr Thr Arg Pro Thr Pro Val Gln Lys His Ala
        195             200             205


Ile Pro Ile Ile Lys Gly Lys Arg Asp Leu Val Ala Cys Ala Gln Thr
    210             215             220


Gly Ser Gly Lys Thr Ala Ala Phe Leu Leu Pro Ile Leu Ser Gln Ile
225             230             235             240


Tyr Thr Asp Gly Pro Gly Glu Ala Leu Lys Ala Val Lys Glu Asn Gly
            245             250             255


Arg Tyr Gly Arg Arg Lys Gln Tyr Pro Ile Ser Leu Val Leu Ala Pro
        260             265             270


Thr Arg Glu Leu Ala Val Gln Ile Tyr Glu Glu Ala Arg Lys Phe Ser
        275             280             285


Tyr Arg Ser Arg Val Arg Pro Cys Val Val Tyr Gly Gly Ala Asp Ile
    290             295             300


Gly Gln Gln Ile Arg Asp Leu Glu Arg Gly Cys His Leu Leu Val Ala
```

Thr Pro Gly Arg Leu Val Asp Met Met Glu Arg Gly Lys Ile Gly Leu
            325   330   335

Asp Phe Cys Lys Tyr Leu Val Leu Asp Glu Ala Asp Arg Met Leu Asp
            340   345   350

Met Gly Phe Glu Pro Gln Ile Arg Arg Ile Val Glu Gln Asp Thr Met
            355   360   365

Pro Pro Lys Gly Val Arg His Thr Met Met Phe Ser Ala Thr Phe Pro
    370   375   380

Lys Glu Ile Gln Met Leu Ala Arg Asp Phe Leu Asp Glu Tyr Ile Phe
385   390   395   400

Leu Ala Val Gly Arg Val Gly Ser Thr Ser Glu Asn Ile Thr Gln Lys
            405   410   415

Val Val Trp Val Glu Asp Leu Asp Lys Arg Ser Phe Leu Leu Asp Ile
            420   425   430

Leu Gly Ala Thr Gly Ser Asp Ser Leu Thr Leu Val Phe Val Glu Thr
            435   440   445

Lys Lys Gly Ala Asp Ser Leu Glu Asp Phe Leu Tyr His Glu Gly Tyr
    450   455   460

Ala Cys Thr Ser Ile His Gly Asp Arg Ser Gln Arg Asp Arg Glu Glu
465   470   475   480

Ala Leu His Gln Phe Arg Ser Gly Lys Ser Pro Ile Leu Val Ala Thr
            485   490   495

Ala Val Ala Ala Arg Gly Leu Asp Ile Ser Asn Val Arg His Val Ile
            500   505   510

Asn Phe Asp Leu Pro Ser Asp Ile Glu Glu Tyr Val His Arg Ile Gly
            515   520   525

Arg Thr Gly Arg Val Gly Asn Leu Gly Leu Ala Thr Ser Phe Phe Asn
    530   535   540

Glu Lys Asn Met Asn Ile Thr Lys Asp Leu Leu Asp Leu Leu Val Glu
545   550   555   560

```
Ala Lys Gln Glu Val Pro Ser Trp Leu Glu Asn Met Ala Tyr Glu His
                565             570                 575


His Tyr Lys Gly Gly Ser Arg Gly Arg Ser Lys Ser Asn Arg Phe Ser
            580             585             590


Gly Gly Phe Gly Ala Arg Asp Tyr Arg Gln Ser Ser Gly Ser Ser Ser
            595             600             605   .


Ser Gly Phe Gly Ala Ser Arg Gly Ser Ser Ser Arg Ser Gly Gly Gly
    610             615             620


Gly Tyr Gly Asp Ser Arg Gly Phe Gly Gly Gly Gly Tyr Gly Gly Phe
625             630             635             640


Tyr Asn Ser Asp Gly Tyr Gly Gly Asn Tyr Asn Ser Gln Gly Val Asp
            645             650                 655


Trp Trp Gly Asn
            660



<210>  31
<211>  482
<212>  DNA
<213>  Homo sapiens

<400>  31
gagaacttga agccaccatg ggagatgaag attgggaagc agaaatcaac cctcatatgt    60

cttcctatgt tcccatattt gagaaggata ggtattctgg agaaaatgga gacaatttta   120

acaggactcc agcttcatca tcagaaatgg atgatggacc ttctcgaaga gatcatttca   180

tgaaaagtgg atttgcctct gggcggaatt ttggaaacag agatgctggt gagtgtaata   240

agcgagataa tacatccaca atgggtggtt ttggagttgg aaagagtttt ggaaacagag   300

gttttttcaaa cagcaggttt gaagatggtg atagctcttg tttctggaga gagtctagta   360

atgactgcga agataatcca acacggaaca gaggggtttt caagaaaggc ggctatcgag   420

atggaaataa ttcagaagct tcagggccat acagagaggt ggagaggtag ttttccgagg   480

tg                                                                   482



<210>  32
<211>  555
<212>  DNA
<213>  Homo sapiens

<400>  32
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tttgacattt agaatgcttt aatattccca gttaacacca tttgtatcag taactgcaat      60

gttgtaagtt ttagcatctc acataactag tcagtaagga tttttttttt aagtgtagga     120

gtgagaatac aaggacagga gctatgagaa tgttaagttt tatacttctg ttaaaaactc     180

aaaaatcaaa actattttct tctctgcatc aaaaccacag acttgaagga tgttttggct     240

ttaatcccat gactcatcat ctactggatt gggagcttgt gaagaagaaa acccagctgt     300

gttcaaagtg ctcttgccct ttctggtatc aactgatgca aacacgtttc ctcttgtact     360

accactgaag ccaggaatgt atgtactaaa ggcaatttct tccaaccatg caggaacatc     420

ctgttgagca tctgtcaata cttttactag aggctgtgct aaatggttat ccgattcaag     480

atcaaaaaag gaaattgctc tgccagtatt cccacaacga ccagtacgcc caattcgatg     540

aacatattca tcaat                                                      555


<210>   33
<211>   491
<212>   DNA
<213>   Homo sapiens

<400>   33
attgatgaat atgttcatcg aattgggcgt actggtcgtt gtgggaatac tggcagacaa      60

tttccttttt tgatcttgaa tcggataacc atttagcaca gcctctagta aaagtattga     120

cagatgctca acaggatgtt cctgcatggt tggaagaaat tgcctttagt acatacattc     180

ctggcttcag tggtagtaca agaggaaacg tgtttgcatc agttgatacc agaaagggca     240

agagcacttt gaacacagct gggttttctt cttcacaagc tcccaatcca gtagatgatg     300

agtcatggga ttaaagccaa aacatccttc aagtctgtgg ttttgatgca gagaagaaaa     360

tagtttttgat ttttgagttt ttaacagaag tataaaactt aacattctca tagctcctgt     420

ccttgtattc tcactcctac acttaaaaaa aaaatcctta ctgactagtt atgtgagatg     480

ctaaaactta c                                                          491


<210>   34
<211>   335
<212>   DNA
<213>   Homo sapiens


<220>
<221>   misc_feature
<222>   (201)..(202)
<223>   n is a, c, g, or t

<400>   34
ttatatatgg gggaacccag ctgggacatt caattcgaca aatagtacaa ggctgtaata      60

tattatgtgc tactcctgga agactgatgg atatcatagg caaagaaaag attggtctca     120
```

```
aacagatcaa atacttagtt ttggatgaag ctgatcgcat gttggatatg ggttttggtc    180

cagaaatgaa gaagttaatt nnttgcccag gaatgccatc aaaggaacag cgccaaaccc    240

ttatgttcag tgcaactttt ccagaggaaa ttcaaaggtt ggctgcagag tttttaaagt    300

caaattatct gtttgttgct gttggacaag tgggt                               335


<210>   35
<211>   555
<212>   DNA
<213>   Homo sapiens


<220>
<221>   misc_feature
<222>   (546)..(546)
<223>   n is a, c, g, or t

<400>   35
tttttttttt tttttttttt ttttgacatt taaaatgctt taatattccc agttaacacc     60

atttgtatca gtaactgcaa tgttgtaagt tttagcatct cacataacta gtcagtaagg    120

attttttttt taagtgtagg agtgagaata caaggacagg agctatgaga atgttaagtt    180

ttatacttct gttaaaaact caaaaatcaa aactattttc ttctctgcat caaaaccaca    240

gacttgaagg atgttttggc tttaatccca tgactcatca tctactggat tgggagcttg    300

tgaagaagaa aacccagctg tgttcaaagt gctcttgccc tttctggtat caactgatgc    360

aaacacgttt cctcttgtac taccactgaa gccaggaatg tatgtactaa aggcaatttc    420

ttccaaccat gcaggaacat cctgttgagc atctgtcaat acttttacta gaggctgtgc    480

taaatggtta tccgattcaa gatcaaaaaa ggaaattgct ctgccagtat tcccacaacg    540

accagnacgc ccaat                                                     555


<210>   36
<211>   347
<212>   DNA
<213>   Homo sapiens

<400>   36
tttttttttt atgagaatgt taagttttat acttctgtta aaaactcaaa aatcaaaact     60

attttcttct ctgcatcaaa accacagact tgaaggatgt tttggcttta atcccatgac    120

tcatcatcta ctggattggg agcttgtgaa gaagaaaacc cagctgtgtt caaagtgctc    180

ttgccctttc tggtatcaac tgatgcaaac acgttcctc ttgtactacc actgaagcca    240

ggaatgtatg tactaaaggc aatttcttcc aaccatgcag gaacatcctg ttgagcatct    300

gtcaatactt ttactagagg ctgtgctaaa tggttatccg attcaag                  347
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```
<210>  37
<211>  469
<212>  DNA
<213>  Homo sapiens


<220>
<221>  misc_feature
<222>  (341)..(341)
<223>  n is a, c, g, or t

<400>  37
ttttgacatt tagaatgctt taatattccc agttaacacc atttgtatca gtaactgcaa        60

tgttgtaagt tttagcatct cacataacta gtcagtaagg attttttttt taagtgtagg       120

agtgagaata caaggacagg agctatgaga atgttaagtt ttatacttct gttaaaaact       180

caaaaatcaa aactattttc ttctctgcat caaaaccaca gacttgaagg atgttttggc       240

tttaatccca tgactcatca tctactggat tgggagcttg tgaagaagaa aacccagctg       300

tgttcaaagt gctcttgccc tttctggatc aactgatgca naaccgtttc ctcttgtact       360

accactgaag ccaggaatgt tgtactaaag gcaatttctt ccaaccatgc aggaacatcc       420

tgttgagcat ctgtcaatac tttactagaa gctgtgctaa atggttatc                   469


<210>  38
<211>  300
<212>  DNA
<213>  Homo sapiens

<400>  38
aagtgtaggt ttgagaatac aaggacagga gctatgagaa tgttaagttt tatacttctg        60

ttaaaaactc aaaaatcaaa actattttct tctctgcatc aaaaccacag acttgaagga       120

tgttttggct ttaatcccat gactcatcat ctactggatt gggagcttgt gaagaagaaa       180

acccagctgt gttcaaagtg ctcttgccct ttctggtatc aactgatgca aacacgtttc       240

ctcttgtact accactgaag ccaggaatgt atgtactaaa ggcaatttct tccaaccatg       300


<210>  39
<211>  300
<212>  DNA
<213>  Homo sapiens

<400>  39
aagtgtagga gtgagaatac aaggacagga gctatgagaa tgttaagttt tatacttctg        60

ttaaaaactc aaaaatcaaa actattttct tctctgcatc aaaaccacag acttgaagga       120

tgttttggct ttaatcccat gactcatcat ctactggatt gggagcttgt gaagaagaaa       180

acccagctgt gttcaaagtg ctcttgccct ttctggtatc aactgatgca aacacgtttc       240
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ctcttgtact accactgaag ccaggaatgt atgtactaaa ggcaatttct tccaaccatg   300

<210>   40
<211>   371
<212>   DNA
<213>   Homo sapiens

<400>   40
tttttttttt tttttttttt tttttttttt ttgacattta gaatgcttta atattcccag   60

ttaacaccat ttgtatcagt aactgcaatg ttgtaagttt tagcatctca cataactagt   120

cagtaaggat ttttttttta agtgtaggag tgagaataca aggacaggag ctatgagaat   180

gttaagtttt atacttctgt taaaaactca aaaatcaaaa ctattttctt ctctgcatca   240

aaaccacaga cttgaaggat gttttggctt taatcccatg actcatcatc tactggattg   300

ggagcttgtg aagaagaaaa cccagctgtg ttcaaagtgc tcttgccctt tctggtatca   360

actgatgcaa a   371

<210>   41
<211>   108
<212>   DNA
<213>   Homo sapiens

<400>   41
gaatgtatgt actaaaggca atttcttcca accatgcagg aacatcctgt tgagcatctg   60

tcaatacttt tactagaggc tgtgctaaat ggttatccga ttcaagat   108

<210>   42
<211>   103
<212>   DNA
<213>   Homo sapiens

<400>   42
gaatgtatgt actataggca atttcttcca tccatgtcgg aacatcctgt tgagcatctg   60

tcaatacttt tactagaggc tgtgctacat ggctaaccga atc   103

<210>   43
<211>   100
<212>   DNA
<213>   Homo sapiens

<400>   43
gaatgtatgt actaaaggca atttcttcca accatgcagt gacatcatgt tgagcatctg   60

tcaatacttt tactagatgc tgtctataat aggtatcgga   100

<210>   44
<211>   79
<212>   DNA
<213>   Homo sapiens

<400> 44
ttctaccatt gatgaatatg ttcatcgact tgggcgtact ggtcgttgtg ggaatactgg   60

cagagcaagt ttccttttt   79

<210> 45
<211> 471
<212> DNA
<213> Homo sapiens

<400> 45
gaaagattgg attagacttt tgcaaatact tggtgttaga tgaagctgat cggatgttgg   60

atatggggtt tgagcctcag attcgtagaa tagtcgaaca agatactatg cctccaaagg   120

gtgtccgcca cactatgatg tttagtgcta cttttcctaa ggaaatacag atgctggctc   180

gtgatttctt agatgaatat atcttcttgg ctgtaggaag agttggctct acctctgaaa   240

acatcacaca gaaagtagtt tgggtggaag aatcagacaa acggtcattt ctgcttgacc   300

tcctaaatgc aacaggcaag gattcactga ccttagtgtt tgtggagacc aaaaagggtg   360

cagattctct ggaggatttc ttataccatg aaggatacgc atgtaccagc atccatggag   420

accgttctca gagggataga gaagaggccc ttcaacagtt ccgctcaggg a   471

<210> 46
<211> 381
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (264)..(264)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (336)..(336)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (378)..(378)
<223> n is a, c, g, or t

<400> 46
ttttgcaaat acttggtgtt agatgaagct gatcggatgt tggatatggg gtttgagcct   60

cagattcgta gaatagtcga acaagatact atgcctccaa agggtgtccg ccacactatg   120

atgtttagtg ctacttttcc taaggaaata cagatgctgg ctcgtgattt cttaggatga   180

atatatcttc ttgggctgta gggaaggagt tgggctctac ctctggaaaa catcacacag   240

gaaagtagtt ggggtgggaa ggantcagga caaacgggtc atttctggct tgaccctccc   300

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taaatggcaa caggggcaag ggatttcact tgaccnttag gtgttttgtg ggggagaccc      360

caaaaggggg tgccaggntt c                                               381


<210>  47
<211>  361
<212>  DNA
<213>  Homo sapiens

<400>  47
ttttgcaaat acttggtgtt agatgaagct gatcggatgt tggatatggg gtttgagcct       60

cagattcgta gaatagtcga acaagatact atgcctccaa agggtgtccg ccacactatg      120

atgtttagtg ctacttttcc taaggaaata cagatgctgg ctcgtgattt cttagatgaa      180

tatatcttct tgggctgtag ggaagagttg gctctacctc tgaaaacatc acacagaaag      240

tagttggggt gggaaggaat cagacaaacg gtcatttctg gcttggacct cctaaatggc      300

aacagggcaa gggttcactt gaccttagtg ttttgttggg agacccaaaa aggggtgcca      360

g                                                                     361
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